NON-PUBLIC?: N
ACCESSION #: 8808030312
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Hope Creek Generating Station PAGE: 1 of 4

DOCKET NUMBER: 05000354

TITLE: Automatic Reactor Scram on Low Reactor Water Level
Signal - Personnel Error
EVENT DATE: 05/05/88 LER #: 88-013-01 REPORT DATE: 07/28/88

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: A. M. Ervin, Lead Engineer - Technical
TELEPHONE #: 609-339-5239

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: On May 5, 1988 at 0917 hours, the Plant was in OPERATIONAL CONDITION 1 (Power Operation) at 100% power generating 1090 MWe, when the performance of preventive maintenance on the "A" Secondary Condensate Pump Auxiliary Oil Pump Circuit Breaker was approved. Reactor level was being maintained by the "B" and "C" Reactor Feedwater Pumps (RFP) only since the "A" Reactor Feedwater Pump Turbine (RFPT) was out of service. When the breaker was opened, the "A" Secondary Condensate Pump tripped. The reactor water level began to decrease when the suction pressure to the remaining Feedwater pumps decreased. As a result, the "B" and "C" RFPT increased in speed to compensate for the reduction in flow. Reactor level was stabilizing when the "B" turbine tripped on overspeed, resulting in a reactor water level decrease to level 3, initiating an automatic scram. The cause of this occurrence was determined to be a personnel error due to a failure to recognize the consequences of the design interface between the Secondary Condensate Pump and its Auxiliary Oil Pump. A contributing factor was the premature trip of the "B" RFPT. Corrective actions include operator training, outage requirement justifications in work orders, evaluation of need for design change, verification of the RFPT overspeed trip setpoints and departmental reviews of this event with their personnel.

(End of Abstract)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)
Condensate System (EIIS Designator:SD)

IDENTIFICATION OF OCCURRENCE

Automatic Reactor Scram On Low Reactor Water Level Signal - Personnel Error

Event Date: May 5, 1988
Event Time 0917 Hours
This LER was initiated by Incident Report No. 88-086

CONDITIONS PRIOR TO OCCURRENCE

The Plant was in OPERATIONAL CONDITION 1 (Power Operation) at 100% power generating 1090 MWe.

DESCRIPTION OF OCCURRENCE

On May 5, 1988 at 0917 hours, the performance of preventive maintenance on the "A" Secondary Condensate Pump Auxiliary Oil Pump Circuit Breaker was approved. Reactor level was being maintained by the "B" and "C" Reactor Feedwater Pumps (RFP) only since the "A" Reactor Feedwater Pump Turbine (RFPT) was out of service. When the breaker was opened, the "A" Secondary Condensate Pump tripped. The reactor water level began to decrease when the suction pressure to the remaining Feedwater pumps decreased. As a result, the "B" and "C" RFPT increased in speed to compensate for the reduction in flow. Reactor level was stabilizing when the "B" turbine tripped on overspeed, resulting in a reactor water level decrease to level 3, initiating an automatic scram.

APPARENT CAUSE OF OCCURRENCE

The cause of this occurrence was determined to be a personnel error due to a failure to recognize the consequences of the design interface between the Secondary Condensate Pump and its Auxiliary Oil Pump. A contributing factor was the premature trip of the "B" RFPT.

Difficulty arose in tracking this design through several tiers of engineering drawings. In this design interface the breaker supplying power to the Secondary Condensate Auxiliary Oil Pump is also the breaker that supplies power to the Secondary Condensate Pump low oil pressure switch. De-energizing the breaker not only removes power from the Auxiliary Oil Pump but

APPARENT CAUSE OF OCCURRENCE (CONTINUED)

also de-energizes the low oil pressure switch for the secondary condensate pump, causing it to trip. This was not clearly defined in the referenced design drawings and was a causal factor in the inadequate review performed on this work activity.

ANALYSIS OF OCCURRENCE

The Reactor Recirculation Pumps were manually runback in an attempt to reduce power and maintain level. One automatic runback was not armed because the "A" Feedwater Pump was out of service. When reactor level dropped to 30 inches, an automatic runback occurred. The "B" RFPT tripped at approximately 5500 rpm rather than its design trip point of 6100 rpm. Had the "B" turbine not tripped below its intended setpoint, this scram would not have occurred.

With the "A" RFP out of service and the reduced suction pressure to the "B" and "C" RFPs, the "B" and "C" RFPT speeds increased to maintain feedwater flow. The "B" RFPT tripped prematurely on high RPM and Reactor Pressure Vessel water level decreased to level 3, initiating a Reactor Protection System (RPS) low level scram.

All RPS functions performed as designed and the plant was stabilized with the Feedwater System returned to service to maintain reactor vessel level at +35 inches.

Preventive maintenance on the "A" Secondary Condensate Pump Auxiliary Oil Pump Circuit Breaker is coded "outage required" in the maintenance work order data base and appeared on the printed work order. Three opportunities to prevent the performance of this task during power operation were missed. The scheduler did not notice that this activity was coded to be performed during an outage. The maintenance supervisor also did not notice the coding when assigning the work task. Finally, the Operations Department work control center noticed the coding when approving the preventive maintenance work package but decided that the work could be done at power.

PREVIOUS OCCURRENCES

There have been no previous scrams caused by the performance of tasks which should have been deferred to either a system or unit outage.

SAFETY ASSESSMENT

All safety systems performed their design functions as required to scram the plant and maintain it in a safe condition, therefore the health and safety of the public was not compromised by this event.

REPORTABILITY

This report is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv).

CORRECTIVE ACTIONS

1. The Nuclear Training Department will review this event for inclusion in future operator training.

2. A statement describing the rationale for the designation of tasks as requiring a system or unit outage will be added to the recurrent task database and printed on work orders. All tasks restricted to designated operational conditions will be confirmed by a review of the trip logic of equipment impacted. During the research and implementation period for this requirement, handwritten notes containing this information will be added to all work orders with operational condition restrictions.

3. Evaluate the need for a design change to eliminate the Secondary Condensate Pump trip which is caused by the opening of the Auxiliary Oil Pump breaker.

4. The RFPT overspeed trip setpoints will be re-verified and reset at the next outage.

5. The Planning, Maintenance and Operations Departments have reviewed this incident with all appropriate personnel, cautioning them to check the priority code when scheduling or approving maintenance activities.

Sincerely,
/s/ S. LaBruna
S. LaBruna
General Manager -
Hope Creek Operations

AME:

SORC Mtg. 88-102

PSE&G
Public Service Electric and Gas Company P.O. Box L
Hancocks Bridge, New Jersey 08038
Hope Creek Operations

July 28, 1988

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sir:

HOPE CREEK GENERATING STATION
DOCKET NO. 50-354
UNIT NO. 1
LICENSEE EVENT REPORT 88-013-01

This revised Licensee Event Report is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv).

Sincerely,
/s/ S. LaBruna
S. LaBruna
General Manager -
Hope Creek Operations

AME:
Attachment
SORC Mtg. 88-102
C Distribution

*** END OF DOCUMENT ***